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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/378,108	08/20/1999	OLAF DICKER	99P7740US	8733

7590

05/13/2003

SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
186 WOOD AVENUE SOUTH
ISELIN, NJ 08830

EXAMINER

FERRIS, DERRICK W

ART UNIT

PAPER NUMBER

2663

DATE MAILED: 05/13/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/378,108

Applicant(s)

DICKER ET AL.

Examiner

Derrick W. Ferris

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. **Claims 1-22** as amended are still in consideration for this application. Applicant has amended claims 1, 7, 15, 20, 21 and 22.
2. Examiner **withdraws** the 112-second paragraph rejection for Office action filed 12/10/02 in reference to line item 4. Examiner thanks applicant for making the necessary corrections to clarify the recited claimed subject matter and thus withdraws the rejection.
3. Examiner **withdraws** the obviousness rejection to *Haartsen* '332 for Office action filed 12/10/02 in reference to line item 5-6. *Haartsen* may not clearly teach spectral separation as more clearly defined by applicant's amendment since each group could have the same unique channel frequency (e.g., as noted for the three frequency hop lists as shown in figure 6). Thus applicant has withdrawn the rejection and replaced the rejection with a new rejection based on the claims as necessitated by amendment. Examiner notes applicant's invention relates to "spectral separation" which applicant attempts to more clearly recite in the amended claims based on the new claim limitations (i.e., again at issue is the definition of what applicant really means by "spectral separation"). The examiner thinks it may be important to emphasize the interpretation to these new limitations in light of applicant's specification where the examiner has taken a literal interpretation of the claim limitations based on applicant's specification. Specifically, examiner notes two potential issues with the claims as amended. The first issue is the term "channel" in reference to "each frequency of a frequency set corresponding to a channel" as recited in the claims (e.g., claim 1, line 8). Examiner notes applicant defines a "channel" as either a channel or a link in reference to links 12(a)-12(d) as disclosed by applicant

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(page 4, lines 13-15 in applicant's specification). (In other words, examiner has construed the term "channel" to be equivalent to a link, in the context of links 12(a)-12(d) mentioned in applicant's specification, where examiner has used this same definition for each instance of the term "channel" as recited in the claims.) Examiner also notes channels/links may not be the same as the channels 32 shown in figure 3 (i.e., it is unclear from applicant's specification how channels 32 relate to links 12(a)-12(d)). Specifically, examiner notes applicant teaches that each frame 24 has a set of frequencies (F1-F4), this set of unique channel frequencies consisting of F1-F4 in both the receive and the transmit direction (i.e., full duplex instead of simplex) as shown by figure 4. Thus only four unique channel frequencies (F1-F4) are shown for a set (and not eight unique channel frequencies for used for simplex as is known in the art). This brings the second issue into play, which is the subtle difference of a "set" and a "subset" as disclosed by applicant and as claimed by applicant with respect to the limitation of "access a plurality of frequency sets, each frequency of a frequency set corresponding to a channel" (e.g., claim 1, lines 6-7). As defined by applicant a "set" is a group of unique carrier frequencies for a particular frame 24 (i.e., each frame 24 has a set of frequencies) [applicant's specification on page 6, lines 24-33; page 7, lines 1-6]. This is different from a "subset" as disclosed with respect to figure 3 (i.e., a "subset and a "set" are used in different contexts and are thus not equivalent). Thus examiner notes that "by selecting a frequency from each frequency set, each pair of unique channel frequencies having spectral separation" refers to selecting F1-F4 in a set for a frame 24 and not necessarily F1-F4 with respect to a subset as shown in figure 3. Examiner notes this is not the interpretation in light of applicant's specification which is selecting a unique carrier frequencies (e.g., F2) from a different subset then a previous unique carrier frequency (e.g., F1)

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in order to achieve “frequency separation” [emphasis applicant’s specification on page 8, lines 11-19]. Examiner recommends that if the interpretation by the examiner is incorrect that the applicant should clarify the correct interpretation by using “subset” instead of “set” and/or “link” instead of “channel”.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,848,095 to *Deutsch et al* (“*Deutsch*”) (mentioned on a previous Office action) and “A Spectrum Efficient Technique for Cordless Telephone Access to ISDN” by *Kashorda et al.* (“*Kashorda*”)

As to **claims 1, 7, 15 and 21-22**, *Deutsch* discloses an adaptive frequency hopping method for using pre-established frequency assignments in a plurality of time slot groups which are separated by a minimum distance (i.e., “spectral separation” using a reasonable but broad interpretation). Taught is a communication between a remote unit 14 and a base unit 12 in a wireless telephone system such as a cordless phone system [column 5, lines 59-63] (see claim 1 with further emphasis for a cordless system with respect to a wireless telephone system). Shown in figure 4, each frequency of a frequency set corresponds to a channel (i.e., a spectrum is broken up into 200 different sets of frequency/channel pairs). Using the adaptive frequency plan described at column

6, lines 54-64, each of the 200 channels are further divided into 10 subbands (step 1) where a random sequence of the subbands is created for each group (i.e., a group such as Group A shown in figure 3). Hence shown in figure 6 are 5 random sequences of the 10 subbands for a total of 50 frequency hops (steps 2-3) using 50 channels (these channels are not channel/links as recited by applicant). Next, for each sequencing, a channel is randomly selected for each subband/sequence (step 6). The key is that for each group (i.e., the four groups: Group A – Group D), the random sequence is advanced one place in a random sequence (step 4), which is key since this ensure a “spectral separation” between groups [column 2, lines 54-63].

Examiner notes that the reference is silent or deficient to a “plurality of individual communications channels between a first data station and a second data station” (e.g., channels/links 12(a)-12(d) as disclosed in relation to applicant’s specification). Examiner notes the reference teaches that a remote unit 14 communicates with base station 12 through RF transceiver 210 which receives signals from and transmits signals to base station 12 through antenna 22 (i.e., it is not clear whether these radio signals are in parallel using multiple lines/channels, or serial using a single line/channels) [column 4, lines 23-26]. Examiner notes that it would have been obvious to a skilled artisan prior to applicant’s invention to use more than one channel between a radio base station and a remote station for transferring data, the motivation being that a higher bandwidth capacity can be formed by using more than one data channel at a time. This is further emphasized in the background of *Kashorda* (and not the main body of the article which discloses multiplexing both voice and data over a single channel), disclosing that in

particular the cordless telephone user may only have on demand access to a variable capacity data channel (i.e., multiple logical channels), where the capacity is dynamically allocated in accordance with user demands [page 15]. Thus in choosing another unique carrier frequency for more than one channel using the teachings of *Deutsch*, examiner notes that for each particular time slot that the next channel must be on a different group than the previous channel such that the two channels are “spectrally separated”. For example, in using figure 3 as a guideline, for a first time slot 1, if a first link is using A1 then a second channel/link must choose from B1, C1, or D1 in that time slot. Examiner furthermore notes that if interference occurs on A1 for a first channel/link where the first channel/link is forced to use B1 (as an example) the second link must use a different channel which cannot already be assigned (see step 6 column 6, line 65).

As both references disclose wireless communications between a base station and a remote unit, and more specifically, cordless communications, examiner notes a motivation to combine the subject matter as a whole for both references.

As to **claim 2, and 19**, both references disclose operating in duplex. *Deutsch* discloses time division duplexing (TDD) [column 4, line 62].

As to **claims 3, 4, 13, and 16**, *Deutsch* discloses using a frequency offset (i.e., minimum distance of 2 MHz). Using a reasonable but broad interpretation of the claim language, the minimum distance is optimal spectral spacing [column 2, lines 54-64; column 6, lines 26-36].

As to **claims 5 and 12**, *Deutsch* discloses a frequency hopping scheme.

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As to **claims 6, 9, 10, 17 and 18**, *Deutsch* discloses modeling interference through monitoring a link using the RSSI (i.e., an error rate) [column 5, lines 45-51].

As to **claim 8**, the throughput of the combine channels/links is equal to the maximum throughput using a reasonable but broad interpretation of the claim.

As to **claims 11 and 20**, *Deutsch* discloses determining parameters at predetermined intervals of time using a reasonable but broad interpretation.

As to **claim 14**, *Deutsch* also discloses using a table for selecting frequencies from a subband [column 5, lines 41-44].

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (703) 305-4225.

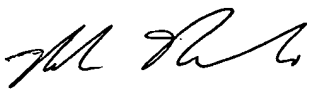
The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (703) 308-5340. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

Derrick W. Ferris
Examiner
Art Unit 2663

DWF 
May 9, 2003


MELVIN MARCELO
PRIMARY EXAMINER